

U.S. Pat. App. Ser. No. 10/018,149
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Reply To 12/02/03 Office Action

Amendments to the CLAIMS:

Without prejudice, this listing of the claims replaces all prior versions and listings of the claims in the present application:

LISTING OF CLAIMS:

- 1-10. (Canceled).
11. (Currently Amended) A method for controlling a speed of a vehicle, comprising the steps of:
 - in the vehicle to be controlled, measuring one of a yaw rate and a rotation rate to determine a curvature of a trajectory of the vehicle;
 - causing one of a proximity sensor and a position sensor to detect one of at least one vehicle traveling ahead and at least some other object within a sensing range, with regard to an offset from a travel course of the vehicle to be controlled;
 - determining a travel-course offset of a vehicle driving ahead in preset measuring cycles;
 - delaying the travel-course offset of the vehicle traveling ahead by a predefined time lag;
 - ascertaining a historical travel-course offset in accordance with a then active curvature of the trajectory of the vehicle to be controlled; and
 - controlling the speed of the vehicle in accordance with the travel-course offset results; wherein the historical travel-course offset is determined in accordance with the relation $yc_{hist} = yv_{hist} - k * d_{hist}^2 / 2$, d_{hist} likewise being one of generated and estimated as a historical distance between the vehicle to be controlled and the vehicle driving ahead on the basis of a delay.
12. (Currently Amended) The method according to claim [[11]] 16, wherein:
 - the predefined time lag is selected such that the historical travel-course offset

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is determined after approximately half of a distance between the vehicle to be controlled and the vehicle driving ahead[[; and]].

13. (Currently Amended) The method according to claim [[11]] 15, wherein:

the historical travel-course offset is determined in accordance with the relation $yc_{hist} = yv_{hist} - k * d_{hist}^2 / 2$, d_{hist} likewise being one of generated and estimated as a historical distance between the vehicle to be controlled and the vehicle driving ahead on the basis of a delay.

14. (Previously Presented) The method according to claim 13, wherein:

the historical distance is estimated according to the relation $d_{hist} = d_{active} - vr * t_{hist}$.

15. (Currently Amended) ~~The method according to claim 12, further comprising the step of:~~
A method for controlling a speed of a vehicle, comprising the steps of:

in the vehicle to be controlled, measuring one of a yaw rate and a rotation rate to determine a curvature of a trajectory of the vehicle;

causing one of a proximity sensor and a position sensor to detect one of at least one vehicle traveling ahead and at least some other object within a sensing range, with regard to an offset from a travel course of the vehicle to be controlled;

determining a travel-course offset of a vehicle driving ahead in preset measuring cycles;

delaying the travel-course offset of the vehicle traveling ahead by a predefined time lag;

ascertaining a historical travel-course offset in accordance with a then active curvature of the trajectory of the vehicle to be controlled;

controlling the speed of the vehicle in accordance with the travel-course offset results; and

supplementing a time span until a maximum value t_{hist} is reached by a component that increases with a duration of observation to form $t_{hist/dyn}$;

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wherein the predefined time lag is selected such that the historical travel-course offset is determined after approximately half of a distance between the vehicle to be controlled and the vehicle driving ahead.

16. (Currently Amended) ~~The method according to claim 11, further comprising the step of:~~
A method for controlling a speed of a vehicle, comprising the steps of:

in the vehicle to be controlled, measuring one of a yaw rate and a rotation rate to determine a curvature of a trajectory of the vehicle;

causing one of a proximity sensor and a position sensor to detect one of at least one vehicle traveling ahead and at least some other object within a sensing range, with regard to an offset from a travel course of the vehicle to be controlled;

determining a travel-course offset of a vehicle driving ahead in preset measuring cycles;

delaying the travel-course offset of the vehicle traveling ahead by a predefined time lag;

ascertaining a historical travel-course offset in accordance with a then active curvature of the trajectory of the vehicle to be controlled;

controlling the speed of the vehicle in accordance with the travel-course offset results; and

at any one time, delaying by a preset value an instantaneous value of curvature of the trajectory of the vehicle to be controlled, the delay being considered as well in the determination of the historical travel-course offset.

17. (Previously Presented) ~~The method according to claim 11, further comprising the step of:~~
for an active travel-course offset and the historical travel-course offset, determining a lane probability of the vehicle driving ahead for at least one of an own lane and adjacent lanes of the vehicle to be controlled.

18. (Currently Amended) ~~The method according to claim 17, further comprising the step of:~~
A method for controlling a speed of a vehicle, comprising the steps of:

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in the vehicle to be controlled, measuring one of a yaw rate and a rotation rate to determine a curvature of a trajectory of the vehicle;

causing one of a proximity sensor and a position sensor to detect one of at least one vehicle traveling ahead and at least some other object within a sensing range, with regard to an offset from a travel course of the vehicle to be controlled;

determining a travel-course offset of a vehicle driving ahead in preset measuring cycles;

delaying the travel-course offset of the vehicle traveling ahead by a predefined time lag;

ascertaining a historical travel-course offset in accordance with a then active curvature of the trajectory of the vehicle to be controlled;

controlling the speed of the vehicle in accordance with the travel-course offset results;

for an active travel-course offset and the historical travel-course offset, determining a lane probability of the vehicle driving ahead for at least one of an own lane and adjacent lanes of the vehicle to be controlled; and

mixing two lane probabilities as a function of a quality of one of the historical travel-course offset to form a new value.

19. (Previously Presented) The method according to claim 11, further comprising the steps of:

in the vehicle to be controlled, providing a number of further detection devices for measuring positions of the vehicle ahead; and

to select an object driving ahead as a vehicle to which a speed of the vehicle to be controlled is to be adapted, evaluating and weighting all results from the further detection devices.

20. (Previously Presented) The method according to claim 19, wherein:

the evaluation and weighting are carried out using one of a video camera, a satellite-supported navigational system, a system for analyzing fixed destinations, and a system for determining a collective yaw rate of objects driving ahead.

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21. (Currently Amended) The method according to claim 11, A method for controlling a speed of a vehicle, comprising the steps of:

in the vehicle to be controlled, measuring one of a yaw rate and a rotation rate to determine a curvature of a trajectory of the vehicle;

causing one of a proximity sensor and a position sensor to detect one of at least one vehicle traveling ahead and at least some other object within a sensing range, with regard to an offset from a travel course of the vehicle to be controlled;

determining a travel-course offset of a vehicle driving ahead in preset measuring cycles;

delaying the travel-course offset of the vehicle traveling ahead by a predefined time lag;

ascertaining a historical travel-course offset in accordance with a then active curvature of the trajectory of the vehicle to be controlled; and

controlling the speed of the vehicle in accordance with the travel-course offset results; wherein:

the predefined time lag is selected such that the historical travel-course offset is determined after approximately half of a distance between the vehicle to be controlled and the vehicle driving ahead; and

the historical travel-course offset is determined in accordance with the relation $y_{c_{hist}} = y_{v_{hist}} - k * d_{hist}^2 / 2$, d_{hist} likewise being one of generated and estimated as a historical distance between the vehicle to be controlled and the vehicle driving ahead on the basis of a delay.

22. (Previously Presented) The method according to claim 21, wherein:

the historical distance is estimated according to the relation $d_{hist} = d_{active} - v_r * t_{hist}$.

23. (Previously Presented) The method according to claim 22, further comprising the step of: supplementing a time span until a maximum value t_{hist} is reached by a component that increases with a duration of observation to form $t_{hist/dyn}$.

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24. (Previously Presented) The method according to claim 21, further comprising the step of: supplementing a time span until a maximum value t_{hist} is reached by a component that increases with a duration of observation to form $t_{hist/dyn}$.
25. (Previously Presented) The method according to claim 21, further comprising the step of: at any one time, delaying by a preset value an instantaneous value of curvature of the trajectory of the vehicle to be controlled, the delay being considered as well in the determination of the historical travel-course offset.
26. (Previously Presented) The method according to claim 25, further comprising the step of: for an active travel-course offset and the historical travel-course offset, determining a lane probability of the vehicle driving ahead for at least one of an own lane and adjacent lanes of the vehicle to be controlled.
27. (Previously Presented) The method according to claim 26, further comprising the step of: mixing two lane probabilities as a function of a quality of one of the historical travel-course offset to form a new value.
28. (Previously Presented) The method according to claim 21, further comprising the step of: for an active travel-course offset and the historical travel-course offset, determining a lane probability of the vehicle driving ahead for at least one of an own lane and adjacent lanes of the vehicle to be controlled.
29. (Previously Presented) The method according to claim 28, further comprising the step of: mixing two lane probabilities as a function of a quality of one of the historical travel-course offset to form a new value.
30. (Previously Presented) The method according to claim 21, further comprising the steps of:

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in the vehicle to be controlled, providing a number of further detection devices for measuring positions of the vehicle ahead; and

to select an object driving ahead as a vehicle to which a speed of the vehicle to be controlled is to be adapted, evaluating and weighting all results from the further detection devices;

wherein the evaluation and weighting are carried out using one of a video camera, a satellite-supported navigational system, a system for analyzing fixed destinations, and a system for determining a collective yaw rate of objects driving ahead.